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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/520,032	03/06/2000	Timothy L. Hoopman	49933USA6H	9385
32692	7590	09/20/2004		
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER DEL SOLE, JOSEPH S	
			ART UNIT	PAPER NUMBER
			1722	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/520,032	HOOPMAN ET AL.	
	Examiner	Art Unit	
	Joseph S. Del Sole	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17, 19-21, 25-28, 33-54, 94-96 and 98-111 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 is/are allowed.
- 6) ☒ Claim(s) 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's Forthcoming Response

1. The Examiner has noted that the response of 8/19/04 was submitted with Non-Compliant claims and, due to the facsimile transmission, the quality of the text of the claims was also poor. The Examiner reminds the Applicant to submit the claims in the proper compliant format; 37CFR1.121 details the proper compliant format. (While the proper status identifiers were used, the Applicant did not include a listing of cancelled claims, including up to claim 175. The text of the cancelled claims should not be included, just the claim numbers with the status identifier: "cancelled".) To correct the poor quality of the text of the claims, the Examiner suggests that the Applicant use a larger font size before faxing the claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 20, 21, 25-28, 33-54, 94-96 and 98-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pieper et al (5,152,917) in view of Rochlis (3,312,583) and either Nelson et al (5,273,558) or Calhoun (5,437,754).

Pieper et al teach a production tool suitable for use in manufacturing an abrasive article having a plurality of three-dimensional cavities (Fig 18); wherein the cavities each have dimensions defining the cavity (Fig 18), wherein each of the cavities has a single opening; the cavities each have a geometric shape defined by a substantially distinct and discernible boundary which includes substantially specific dimensions (Figs 6 and 18); angles forming the geometric shape defined by at least four planar surfaces wherein adjacent planar surfaces of one three-dimensional cavity meet at an edge to define an angle of intersection therebetween (Fig 18); the tool having a first, second, third and fourth plurality of cavities wherein the first (second, third or fourth) plurality of cavities each have a first (second, third or fourth) geometric shape and first (second, third or fourth) plurality of angles forming the geometric shape (Fig 18); the production

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tool is a coating roll (col 9, lines 13-20); a first (second, third or fourth) group of cavities has a first (second, third or fourth) shape; the cavities are defined by a substantially distinct and discernible boundaries which include substantially specific dimensions (Fig 6 and 18), each of the cavities have a boundary; each of the cavities have dimensions defining the cavity, the dimensions including base lengths (Fig 18); the production tool is an engraved metal roll (col 9, lines 26-29).

Pieper et al fail to teach at least 10%, 30% or 50% of pairs of adjacent cavities have at least one dimension different between the two cavities of the pair; the angles being different in at least two of the cavities; wherein at least one of the angles of the first (second or third) plurality of is different from all of the angles of the first (second, third or fourth) plurality of angles; wherein the first (second, third or fourth) group of cavities has a different shape than a first (second, third or fourth) shape; wherein at least 10%, 30% or 50% of pairs of adjacent cavities have at least one base edge length different between the two cavities of the pair; wherein at least one of the base lengths of the first (second or third) plurality of is different from all of the base lengths of the first (second, third or fourth) plurality of angles.

Rochlis teaches a production tool suitable for use in manufacturing an abrasive article (col 1, lines 50-56) which includes a plurality of cavities having geometric shapes, angles and dimensions. At least two of the cavities have different angles. Note that 9 cavities are shown with a first plurality of rectangular cavities, a second plurality of circular cavities, and a third plurality of triangular cavities defining 20 pairs of adjacent cavities, wherein 14 of the pairs have at least one dimension, such as base edge

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lengths, which is different between the two cavities of the pair. Thus, 70% of the pairs have at least one dimension which is different between the two cavities of the pair. At least one of the angles or base edge lengths of the first plurality is different from all the angles or base edge lengths of the second plurality and the third plurality. At least one of the angles or base edge lengths of the second plurality is different from all the angles or base edge lengths of the first plurality and of the third plurality. At least one angle of intersection of the first three-dimensional cavity being different from all angles of intersection of the second three-dimensional cavity, at least 10%, 30% or 50% of pairs of adjacent cavities have at least one dimension different between the two cavities of the pair, the angles are different in at least two of the cavities, wherein at least one of the angles of the first plurality is different from all of the angles of the second, third and fourth plurality of angles and at least one of the angles of the second plurality is different from all of the angles of the first, third and fourth plurality of angles and at least one of the angles of the third plurality is different from all of the angles of the first, third and fourth plurality of angles, wherein at least two adjacent cavities have at least one dimension different between the two cavities, wherein a first group of cavities has a first shape and a second group of cavities has a second, different shape, wherein a first group of cavities has a first size and a second group of cavities has a second, different size, wherein at least 10%, 30% or 50% of pairs of adjacent cavities have at least one base edge length different between the two cavities of the pair, wherein the first plurality of cavities each have a first geometric shape including a base and first plurality of base edge lengths forming the base of the geometric shape and the second plurality of

cavities each have a second geometric shape including a base and second plurality of base edge lengths forming the base of the geometric shape, and wherein at least one of the base edge lengths of the first plurality is different from all of the base edge lengths of the second plurality of base edge lengths for the purpose of producing pile like products having an almost infinite number of specifically different physical characteristics, presenting many different visual, textural and other effects (col. 1, lines 28-36). Nelson et al teaches an abrasive composition (Fig 2) having abrasive particles of non-uniform shapes and sizes (Fig 2A, #13; agglomerates ranging in size from 0.20 to 2.0 mm, col 10, lines 30-31) for the purpose of achieving a high rate of cut. Calhoun teaches an apparatus that produces abrasive composite members of different sizes or different shapes or both different sizes and different shapes (col 6, lines 60-65) for the purpose of optimizing the combination of the cut rate of the abrasive article, the life of the abrasive article, and the surface finish on the workpiece provided by the abrasive article (col 6, line 68 - col 7, line 3).

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have to have modified the abrasive article production tool (a pile-like product) of Pieper et al with the cavities of varied dimensions as taught by the production tool of Rochlis because it enables a production tool capable of producing an abrasive article (pile like articles) with an almost indefinite number of specifically different physical characteristics, presenting many different visual, textural and other effects and it would have been obvious to desire cavities that produce such a varied collection of abrasive member sizes and shapes as taught by Nelson et al and Calhoun

because such variations achieve a high rate of cut and optimize cut rate, life of the abrasive article and surface finish on the workpiece.

The limitation "an abrasive article that comprises a major surface having deployed in fixed position thereon first and second three-dimensional abrasive composites, each of said composites comprising abrasive particles dispersed in a binder and having a shape defined by a substantially distinct and discernible boundary which includes substantially specific dimensions, where said first abrasive composite has a shape having specific first dimensions and said second abrasive composite has a second shape having second specific dimensions, wherein each of said abrasive composites has a boundary defined by at least four planar surfaces, wherein each of said abrasive composites has a boundary defined by at least four planar surfaces, wherein adjacent planar surfaces of one composite meet at an edge to define an angle of intersection therebetween, wherein at least one angle of intersection of said first abrasive composite is different from all of the angles of intersection of said second composite" (Claims 20, 21) does not further limit the apparatus claims because 1) it is drawn to the product produced not the apparatus used for producing the product and 2) it does not serve to limit the structure of the apparatus beyond the specific structural limitations of the claims.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 17, 20, 21, 25-28, 33-54, 94-96 and 98-111 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 23, 24, 30-32, 89, 90, 92, 93 and 133-148 of copending Application No. 09/955,604. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of claims 23, 24, 30-32, and 133-148 of copending Application No. 09/955,604 by eliminating elements thereof because omission of an element and its function in a combination is an obvious expedient if the remaining elements perform the same functions as before, *In re Karlson*, 136 USPQ 184.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

8. Claim 19 is allowed. Note that only the Double Patenting rejection must be overcome in order for claim 17 to be allowable.

Response to Arguments

9. Applicant's arguments with respect to claims 20-21, 25-28, 33-54, 94-96 and 98-111 have been considered but are moot in view of the new ground(s) of rejection.


The Examiner would like to point out that the above rejections make evident that Pieper et al teach the Applicant's invention in its entirety with the exception of cavities of different sizes. The prior art, Rochlis, Calhoun and Nelson et al fully remedy Pieper et al's lack of a showing of cavities of different sizes.

Correspondence

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joseph S. Del Sole whose telephone number is (571) 272-1130. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Wanda Walker, can be reached at (571) 272-1151. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for both non-after finals and for after finals.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).



J.S.D.
September 13, 2004